

ABSTRACT

A hybrid system including a fuel cell and a desalination system, such as, for example, a reverse osmosis (RO) system or a thermal desalination process such as a multi-stage flash (MSF) distillation system. The fuel cell generates electricity and thermal energy exhaust which can be used to power and/or increase the energy efficiency of desalination systems. The hybrid system provides improved overall system efficiencies, generally exceeding the typical efficiencies of either fuel-cell power plants or traditional desalination plants. In reverse osmosis systems, for example, heating the salinous water feed with the thermal energy exhaust not only increases the potable water production, but also decreases the relative energy consumption of the desalination system.